

The greatest monthly precipitation was 20.47 inches at Branscomb. At two stations no precipitation was reported during the month. The greatest 24-hour rainfall was 5.40 inches at Mono Ranch on the 15th.

**Snowfall.**—There was a moderate snowfall in the mountains, and at the close of the month more snow remained on the ground than at the same date last year and about as much as in 1908. There was less snow than in 1909 and 1911. The month was so cold there was less melting and also less evaporation than usual. The run-off was light, and at nearly all points streams were lower than usual. The following table shows the depth of snow on the ground at Summit, Cal., on certain dates in January during the period 1907 to date:

	Jan. 1.	Jan. 15.	Jan. 31.
	Inches.	Inches.	Inches.
1907.....	45	142	148
1908.....	87	72	87
1909.....	28	90	172
1910.....	54	87	68
1911.....	4	136	218
1912.....	60	46	41
1913.....	17	72	88

#### SUNSHINE.

The following table gives the total hours of sunshine and percentages of the possible:

Stations.	Hours.	Percent- age of possible.	Stations.	Hours.	Percent- age of possible.
Eureka.....	153	45	Sacramento.....	192	63
Fresno.....	178	58	San Diego.....	230	72
Los Angeles.....	223	71	San Francisco.....	156	60
Mount Tamalpais.....	194	63	San Jose.....	194	63
Red Bluff.....	182	60	San Luis Obispo.....	193	62

#### CHANGES IN NAMES OF STATIONS.

The following changes have been made in the names of stations, and the new names are used, beginning with the present issue:

Bear Valley No. 1 changes to Lake Spaulding.  
Prattville changes to Neviss.

#### NOTES ON THE RIVERS OF THE SACRAMENTO AND LOWER SAN JOAQUIN WATERSHEDS DURING JANUARY, 1913.

By N. R. TAYLOR, Local Forecaster.

**Sacramento Watershed.**—The rivers of this watershed averaged from 1 foot to over 5 feet above that of the preceding month. They were, however, below the stages usually maintained during the month of January.

General and heavy rains fell in the watersheds of the Upper Sacramento and Lower Pit rivers from the 12th to the 19th, inclusive, with considerable snow at low altitudes, causing a rapid rise in the Sacramento River north of the Feather. At Red Bluff the river rose 13 feet during the 24 hours ending at 7 a. m., of the 14th. This swell reached Jacinto on the 15th and Colusa on the 16th, causing rises of 7 and 11 feet, respectively, at those places. The swell flattened as the lower reaches of the river were approached and amounted to only 4 feet at Sacramento City. The highest stage reached was 21.9 feet at Colusa on the 16th.

The rainfall in the American, Feather, and Yuba watersheds was coincident with that of the Sacramento, except that there was considerably less. There was, however, a heavy snowfall above the 2,000-foot level and

especially in the higher regions, but owing to the prevailing low temperatures neither the main streams nor their feeders showed any marked increase in run-off.

On about the 20th all streams in the Sacramento Basin began falling and continued to do so until the close of the month.

At the end of January the accumulated snow in the mountains ranged from about 18 inches at the 4,000-foot level to nearly 8 feet at the summits.

**The Lower San Joaquin Watershed.**—Rain was general throughout the drainage basin of the Lower San Joaquin Valley from about the 14th to the 20th, inclusive. It was heavy in the upper watersheds of the Tuolumne, Stanislaus, Calaveras, Mokelumne, and Cosumnes with heavy snow at the higher levels. On the floor of the valley the rainfall was relatively light, especially north of San Joaquin Bridge. Notwithstanding the rainfall the rivers remained low during the greater part of the month and there was no rise at any time greater than 1 foot.

After the 20th all streams fell slowly and by the close of the month had practically reached the low stages that obtained prior to the rains.

#### NOTES ON THE STREAMS OF THE UPPER SAN JOAQUIN WATERSHED.

By W. E. BONNETT, Local Forecaster.

Rainfall during January, like that of the preceding several months, was largely deficient in the watershed of the Upper San Joaquin River, and the streams remained at low stages. The deficiency in seasonal precipitation about equals the shortage to January 31, 1912, and the mean stages at Merced Falls and Friant for January this year are the same as last year. At Firebaugh there was no fluctuation in the stream during the month and the stage was the lowest recorded in January.

Following the general rains of the 15th, 16th, and 17th the Merced rose about 1 foot and fell slowly during the remainder of the month. Precipitation was lighter in the watersheds of the Upper San Joaquin itself and in the Kings, and rises at Friant and Piedra were extremely small.

#### DAMAGE BY LIGHTNING NEAR SAN FRANCISCO.

By A. G. McADIE.

On January 15, 1913, shortly before 1 a. m., lightning struck the tower of the life-saving station at Bonita Point and did considerable damage. It set fire to the captain's room, but it was quickly extinguished; the damage was estimated about \$500. A flagpole, standing on somewhat higher ground to the northward, was also struck and partly destroyed. It may be stated that occurrences of this kind while rare are not unknown. At San Francisco the first thunder was heard at 12.01 a. m., and last at 1.15 a. m. The direction of the wind before the storm was southwest and after the storm south. The temperature before the storm, 52°, and after the storm, 42°.

#### NOTE ON WEATHER AT FRESNO, CAL., DURING JANUARY, 1913.

By W. E. BONNETT, Local Forecaster.

January was a month of abnormal and generally unfavorable conditions. A severe dust storm occurred on the 4th, when the wind increased during the forenoon to 30 miles per hour by noon, a velocity which was then maintained for about six hours, and a new wind record